

AMT for Crowdsourcing

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Abstract

The Amazon Mechanical Turk (MTurk) is a crowdsourcing Internet marketplace that enables individuals or businesses (known as Requesters) to co-ordinate the use of human intelligence to perform tasks that computers are currently unable to do. It is one of the sites of Amazon Web Services. The Requesters are able to post tasks known as HITs (Human Intelligence Tasks), such as choosing the best among several photographs of a store-front, writing product descriptions, or identifying performers on music CDs. Workers (called Providers in Mechanical Turk's Terms of Service, or, more colloquially, Turkers) can then browse among existing tasks and complete them for a monetary payment set by the Requester. To place HITs, the requesting programs use an open Application Programming Interface, or the more limited MTurk Requester site.[3] Requesters are restricted to US-based entities.[4]

Keywords

Amazon Mechanical Turk (AMT), Crowdsourcing, AMT workflow

I. Introduction

A crowdsourcing platform creates a marketplace on which requesters offer tasks and workers accept and work on the tasks. AMT provides a API for requesting and managing work. AMT supports so-called microtasks. Microtasks usually do not require any special training and typically take no longer than one minute to complete; although in extreme cases, tasks can require up to one hour to finish. In AMT, as part of specifying a task, a requester defines a price/reward that the worker receives if the task is completed satisfactorily.

II. Mechanical Turk Basics

AMT has established its own terminology. There are slight differences in terminology used by requesters and workers.

Requesters terminology- Key terms are:

HIT

A Human Intelligent Task, or HIT, is the smallest entity of work a worker can accept to do. HITs contain one or more jobs. For example, tagging five pictures could be one HIT, Commenting on a picture after analysis can be one HIT.

Assignment

Every HIT can be replicated into multiple assignments. AMT ensures that any particular worker processes at most a single assignment for each HIT, enabling the requester to obtain answers for the same HIT from multiple workers. Odd numbers of assignments per HIT enable majority voting for quality assurance, so it is typical to have three or five assignments per HIT. Requesters pay workers for each assignment completed satisfactorily.

HIT Group

AMT automatically groups similar HITs together into HIT Groups based on the requester, the title of the HIT, the description, and the reward. For example, a HIT group could contain 50 HITs, each HIT asking the worker to classify several pictures.

Workers terminology- Key terms are:

- Identify Suitable HIT
- Perform the task
- Collect the reward

III. The basic AMT workflow

A requester packages the jobs comprising his or her information needs into HITs, determines the number of assignments required

for each HIT and posts the HITs. Requesters can optionally specify requirements that worker must meet to be able to accept the HIT. AMT Groups compatible HITs into HIT Groups and posts them so that they are searchable by workers. A worker accepts and processes assignments. Requesters then collect all the completed assignments for their HITs and apply whatever quality control methods they deem necessary.

Furthermore, requesters approve or reject each assignment completed by a worker: Approval is given at the discretion of the requester. Assignments are automatically deemed approved if not rejected within a time specified in the HIT configuration. For each approved assignment the requester pays the worker the pre-defined reward, an optional bonus, and a commission to Amazon.

Workers access AMT through their web browsers and deal with two kinds of user interfaces. One is the main AMT interface, which enables workers to search for HIT Groups, list the HITs in a HIT Group, and to accept assignments. The second interface is provided by the requester of the HIT and is used by the worker to complete actually the HIT's assignments. A good user interface can greatly improve result quality and worker productivity. Pictorial Representation of workflow:

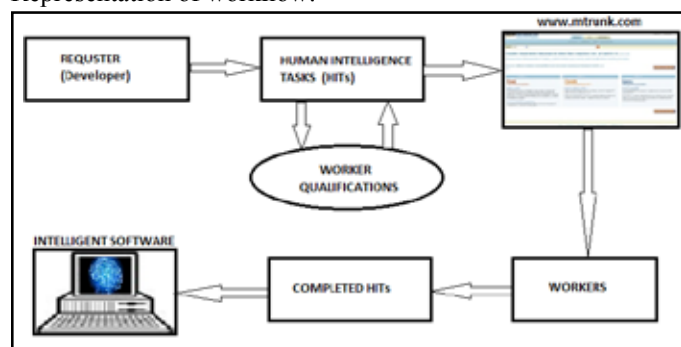


Fig.1: Work flow of Mechanical Turk

IV. Mechanical Turk APIs

A requester can automate his or her workflow of publishing HITs, etc. by using AMT's web service or REST APIs. The interfaces are:

createHIT(title, description, question, keywords, reward, duration, maxAssignments, lifetime)-> HitID: Calling this method creates a new HIT on the AMT marketplace. The createHIT method returns a HitID to the requester that is used to identify the HIT for all farther communication. The title, description, and reward and other fields are used by AMT to combine HITs into HIT

Groups. The question parameter encapsulates the user interface that worker use to process the HIT, including HTML pages. The duration parameter shows how long the worker has to complete an assignment after accepting it. The lifetime attribute shows an amount of time after which the HIT will no longer be available for workers to accept. Requesters can also constrain the set of workers that are allowed to process the HIT.

get Assignments For HIT(HitID)->list(asnId, workerId , answer): This method returns the results of all assignments of a HIT that have been provided by workers (at most, maxAssignments answers as specified when the requester created the HIT). Each answer of an assignment is given an asnID which is used by the requester to approve or reject that assignment.

approve Assignment (asnID) / reject Assignment (asnID): Approval triggers the payment of the reward to the worker and the commission to Amazon.

force Expire HIT (HitID): Expires a HIT immediately. Assignments that have already been accepted may be completed.

V. AMT Expiration

Prepaid HITs do not expire. If no Prepaid HITs are purchased or paid to workers for at least two (2) years and six (6) months, consecutively, the balance in the Prepaid HIT balance will be automatically converted into a Amazon.com gift certificate and added to the gift certificate balance of a Amazon.com account associated with then-current

e-mail address for the Mechanical Turk account.

VI. AMT Limitations

The limitations of AMT are:

1. In order for Mechanical Turk workers to be eligible to receive payments from Prepaid HITs, workers must have a valid Mechanical Turk account.
2. Except for payments on the Mechanical Turk web site, Prepaid HITs may not be redeemed for the purchase of products or services on any other Web site operated by Amazon.com, its affiliates, or any other person or entity.
3. Prepaid HITs cannot be transferred, resold, redeemed for cash or applied to any other account, except as provided in these terms or to the extent required by law. Unused Prepaid HIT balances may not be transferred to any other Amazon Payments account.
4. If Amazon Mechanical Turk ends your Participation Agreement because you have violated the Policies (as defined in that agreement), then any services that have been completed but not accepted by you will be deemed accepted and the applicable payments will be remitted to the service providers and deducted from your Prepaid HITs balance and the remaining balance (if any) of your Prepaid HITs will become the property of Amazon Mechanical Turk.

VII. Example of HIT representation:



Fig. 2: Sample HIT representation

VIII. Conclusion

AMT system technology is a powerful technique for additional value for a business from Crowd(Non Employed People). These systems are helpful for finding solution of its interest through CrowdSourcing. Conversely, they help the People by providing Prize or money for solution they provide. AMT systems are rapidly becoming a crucial tool in E-commerce on the Web. New technologies are needed that can dramatically improve the solution.

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